1. Description of the application

This is a protected currency converter application that uses a public currency converter API (https://currencylayer.com/documentation) to make currency exchange queries. The application allows to save queries and see the historical of the queries that the user has saved. After a successful register, the user should sign in to be able to use all features. The application supports internalization (English and German). The application also provides a RESTful Web Services in order to integrate third party software.

2. Technologies used in this application

- JDK 1.8
- Spring (Core, MVC) 4.1.6.RELEASE
- Spring Security 3.2.3.RELEASE
- Hibernate 3.6.9.Final
- HSQLDB 2.3.2
- Servlet API 3.1.0
- Ehcache 2.6.10
- Jackson 2.6.3
- JSON 20151123
- JSTL 1.2
- Jetty 9.2.7.v20150116
- Maven 3.0.3
- Eclipse 3.6
- Logback 1.1.3
- SLF4J 1.7.12

3. Project Structure

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- ∨ 🖳 currency-converter-application [currency-exchange-converter master]
  - 〉 🕸 JAX-WS Web Services
  - 〉 📄 Deployment Descriptor: currency-converter-application
  - ∨ 🍃 Java Resources
    - ∨ 🗁 src/main/java
      - ∨ ⊞ com.currency.converter.api   **currencylayer API**
        - 〉 📄 CurrencyExchangeRateAPI.java
        - 〉 📄 CurrencyRatesAPI.java
      - ∨ ⊞ com.currency.converter.config   **Spring Configuration**
        - 〉 📄 SpringLocaleConfig.java
        - 〉 📄 SpringWebConfig.java
      - ∨ ⊞ com.currency.converter.dao   **DAO**
        - 〉 📄 CurrencyExchangeQueryDao.java
        - 〉 📄 CurrencyExchangeQueryDaoImpl.java
        - 〉 📄 UserDao.java
        - 〉 📄 UserDaoImpl.java
      - ∨ ⊞ com.currency.converter.exception   **Exception Handler**
        - 〉 📄 GlobalExceptionHandler.java
      - ∨ ⊞ com.currency.converter.memorycache   **Memory Cache**
        - 〉 📄 Cache.java
      - ∨ ⊞ com.currency.converter.model   **Model**
        - 〉 📄 CurrencyExchangeQuery.java
        - 〉 📄 CurrencyExchangeQueryForm.java
        - 〉 📄 CurrencyExchangeRate.java
        - 〉 📄 User.java
      - ∨ ⊞ com.currency.converter.rest   **RESTFul**
        - 〉 📄 RESTController.java
      - ∨ ⊞ com.currency.converter.security   **Spring Security**
        - 〉 📄 CustomUserDetails.java
        - 〉 📄 CustomUserDetailsService.java
      - ∨ ⊞ com.currency.converter.service   **Service**
        - 〉 📄 CurrencyExchangeQueryService.java
        - 〉 📄 CurrencyExchangeQueryServiceImpl.java
        - 〉 📄 UserService.java
        - 〉 📄 UserServiceImpl.java
      - ∨ ⊞ com.currency.converter.validator   **Validators**
        - 〉 📄 EmailValidator.java
        - 〉 📄 UserFormValidator.java
        - 〉 📄 ZipCodeValidator.java
      - ∨ ⊞ com.currency.converter.web   **Controller**
        - 〉 📄 CurrencyExchangeController.java
        - 〉 📄 LoginController.java
        - 〉 📄 UserController.java
    - ∨ 🗁 src/main/resources
      - ∨ 🗁 db
        - 📄 db.properties   **DB Properties**
      - ∨ 🗁 messages
        - 📄 messages_de.properties
        - 📄 messages_en.properties
        - 📄 validation_de.properties   **Internalization**
        - 📄 validation_en.properties
      - 📄 ehcache.xml   **ehcache configuration**
      - 📄 logback.xml   **log configuration**
    - 〉 🗁 Libraries
  - 〉 🗁 JavaScript Resources
  - 〉 🗁 Deployed Resources

```
∨ 🗁 main
    > 🗁 java
    > 🗁 resources
    ∨ 🗁 webapp
        ∨ 🗁 META-INF
            📄 persistence.xml       JPA Persistence
        ∨ 🗁 resources
            > 🗁 css                 CSS
            > 🗁 js                  JS
        ∨ 🗁 WEB-INF
            ∨ 🗁 views               Views - JSP
                ∨ 🗁 jsp
                    ∨ 🗁 currency_exchange
                        📄 current.jsp
                        📄 list.jsp
                        📄 new.jsp
                    ∨ 🗁 fragments
                        📄 footer.jsp
                        📄 header.jsp
                    ∨ 🗁 login
                        📄 login.jsp
                    ∨ 🗁 users
                        📄 show.jsp
                        📄 userform.jsp
                    📄 error.jsp
                    📄 security_error.jsp
            📄 applicationContext.xml   Spring Configuration
            📄 spring-web-servlet.xml
            📄 web.xml
    > 🗁 target
    📄 pom.xml                       Maven
```
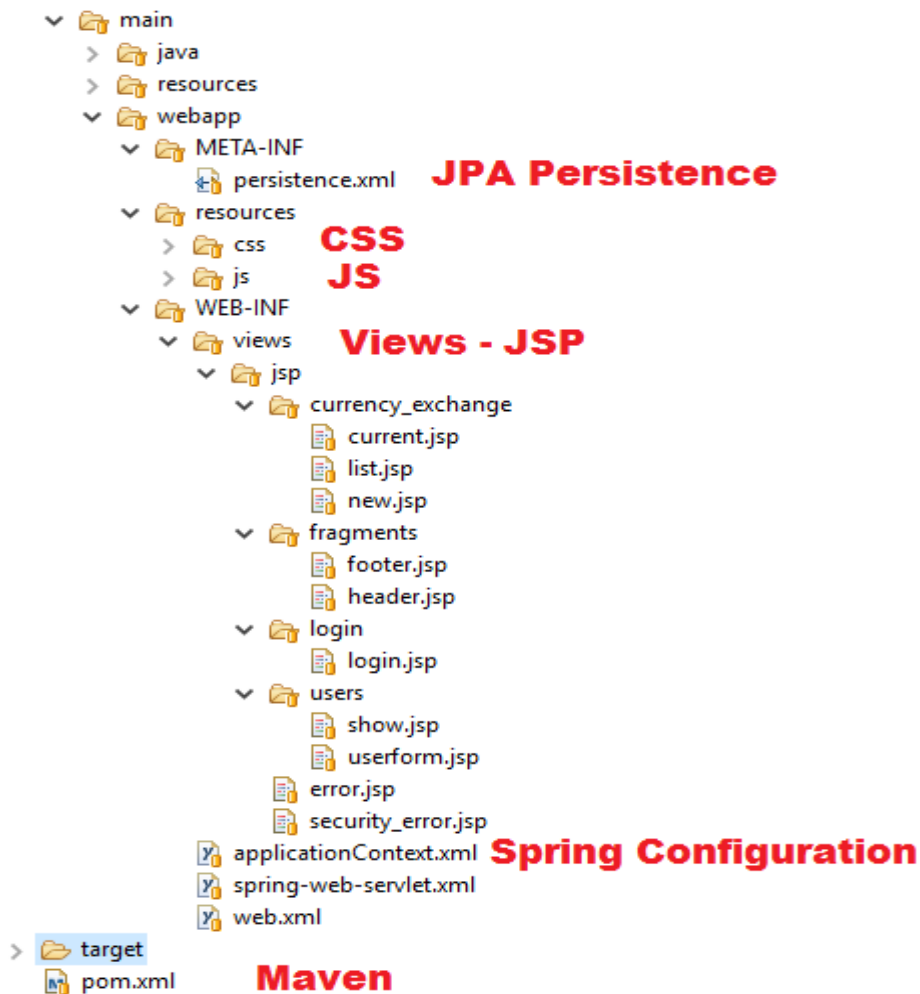
4. Run application

- Git Clone https://github.com/migueldelprado/currency-exchange-converter.git
- mvn package
- java -jar target/dependency/jetty-runner.jar target/*.war
- Go to http://localhost:8080

*Internet connection is requiered to run the application

5. Configuration Ehcache

- File /currency-converter-application/src/main/resources/ehcache.xml

6. RESTful Web Service

- Controller under Java class:

/currency-converter-application/src/main/java/com/currency/converter/rest/RESTController.java

- **Get information about an user**
  - HTTP GET should be used
  - URL ${application-context}/restful/users/{id}
  - {id} - User ID
- **Add a new user**
  - HTTP POST should be used
  - URL ${application-context}/restful/users/add
  -

    ```
    {
    "name": "Miguel",
    "email": "miguel@example.com",
    "dateOfBirth": 554774400000,
    "password": "123456",
    "street": "Strasse 2",
    "zipCode": 81369,
    "city": "Boston",
    "country": "US"
    }
    ```

- **Update an existing user**
  - HTTP PUT should be used
  - URL ${application-context}/restful/users/update/{id}
- **Get historical queries for an user**
  - HTTP GET should be used
  - URL ${application-context}/restful/currency_exchange/{id}
  - {id} - User ID

7. Application running under

http://currency-exchange-converter.herokuapp.com/